NON-PUBLIC?: N
ACCESSION #: 9510060024
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Nine Mile Point Unit 2 PAGE: 1 OF 3

DOCKET NUMBER: 05000410

TITLE: Reactor Manual Scram on High Turbine-Generator Vibration
EVENT DATE: 09/01/95 LER #: 95-008-00 REPORT DATE: 10/02/95

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 026

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Mr. K. D. Ward, Nine Mile Point Unit 2 Engineering Manager TELEPHONE: (315) 349-1043

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On September 1, 1995 at 0504 hours, Nine Mile Point Unit 2 (NMP2) initiated a manual scram signal resulting in a full reactor scram. The manual scram was initiated in anticipation of an automatic scram resulting from an automatic turbine trip on high Turbine-Generator vibration. At the time of the scram, the reactor mode switch was in the "RUN" position and the plant was operating at 26% of rated thermal power with a plant shutdown in progress.

The cause of the turbine vibration was a radial packing rub resulting from the tight clearances within the low pressure turbine.

Immediate operator actions included commencing scram recovery activities and initiating a controlled plant cooldown.

In addition, the Turbine Operating Procedure N2-OP-21, Plant Shutdown Procedure N2-OP-101C, and Power Change Procedure N2-OP-101D, are being revised to provide additional guidance for turbine shutdown and power reductions in the event of high turbine vibrations.

END OF ABSTRACT

I. DESCRIPTION OF EVENT

On September 1, 1995 at 0504 hours, Nine Mile Point Unit 2 (NMP2) initiated a manual scram signal resulting in a full reactor scram. The manual scram was initiated in anticipation of an automatic scram resulting from an automatic turbine trip on high Turbine-Generator vibration. At the time of the scram, the reactor mode switch was in the "RUN" position and the plant was operating at 26% of rated thermal power with a plant shutdown in progress.

At about 0448 hours, the Reactor Recirculation Pumps were downshifted to slow which resulted in a power reduction from approximately 40% to approximately 28% of rated thermal power. Turbine vibration was monitored and rose rapidly to 11.6 mils at which time the Assistant Station Shift Supervisor ordered a manual reactor scram. The automatic turbine trip occurs at a turbine bearing vibration of 12 mils.

Except for Rod 26-19, all control rods indicated Full In on the scram signal without complication. The initial post-scram position of Control Rod 26-19 was reported as unknown; at 0509 hours (5 minutes after the manual scram) Rod 26-19 indicated Full In. Deviation/Event Report (DER) 2-95-2508 was issued to address and resolve this discrepancy. No Safety Relief Valves (SRVs) lifted during this event. Reactor vessel water level dropped to approximately 154 inches indicated and then recovered to a normal level of 183 inches indicated with normal feedwater response.

All other Reactor and Balance of Plant systems responded to the scram as expected. The Scram was reset at 0515 hours.

II. CAUSE OF EVENT

The cause of the turbine vibration was a radial packing rub resulting from the tight clearances of the new monoblock rotors within the low pressure turbine. Analysis of a previous vibration event indicates that radial rubs are a possibility at all times. Although various precautions can be taken to minimize the frequency of occurrence of these rubs, there is no practical way of eliminating the possibility of packing rubs.

The most probable reason for the packing rub is a temperature mismatch between the low pressure turbine exhaust hoods "A" and "B" during the load reduction. Earlier in the shutdown, at about 50% power, a turbine rub developed with increased turbine vibration, but the load reduction was stopped and the vibration decreased. However, the temperature gradient and the potential for another rub was still present. When the Recirculation Pumps were downshifted, which causes a sudden reduction in reactor power level, a rub was initiated causing rising vibration levels.

III. ANALYSIS OF EVENT

This event is reportable in accordance with 10CFR50.73(a)(2)(iv), "any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)."

The manual scram was initiated in anticipation of an automatic scram resulting from an automatic turbine trip on high Turbine-Generator vibration. The event is bounded by the analysis discussed in the NMP2 Updated Safety Analysis Report (USAR) section 15.2.3, "Turbine Trip." This event had no adverse consequences. It did not adversely affect any other safety system nor the operators' ability to maintain safe reactor plant conditions. This event in no way adversely affected the safety of the general public or plant personnel.

IV. CORRECTIVE ACTIONS

The immediate corrective actions were for operators to perform scram recovery actions, place the plant in a stable condition, and determine the cause of the scram. In addition, the Turbine Operating Procedure, N2-OP-21, and Power Changes Procedure, N2-OP-101D, have been revised to provide additional guidance for turbine shutdown and power reductions in the event of high turbine vibrations. The Plant Shutdown Procedure, N2-OP-101C, will be similarly revised by October 10, 1995. Specifically, if turbine vibration increases during power reduction the turbine will be held at a constant power level for a specified time period after vibration is stabilized to allow thermal equalization of the turbine components.

V. ADDITIONAL INFORMATION

A. Failed components: none.

B. Previous similar events: Licensing Event Report 95-05 described a scram resulting from a high turbine vibration problem during startup. The corrective actions described in LER 95-05 would not have prevented this event.

C. Identification of components referred to in this LER:

COMPONENT IEEE:803 EIIS FUNCTION IEEE 805 SYSTEM ID

Main Turbine Gene-
rator System N/A TA/TB

Reactor Mode Switch 33 JC

Control Rod N/A JC

ATTACHMENT TO 9510060024 PAGE 1 OF 1

NIAGARA
MOHAWK

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October 2, 1995
NMP2L 1575

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Docket No. 50-410
LER 95-08

Gentlemen:

In accordance with 10CFR50.73 (a)(2)(iv), we are submitting LER 95-08, "Reactor Manual Scram on High Turbine-Generator Vibration."

Very truly yours,

R. B. Abbott
Vice President - Nuclear Generation

RBA/AFZ/kap
Attachment

xc: Mr. Thomas T. Martin, Regional Administrator, Region I
Mr. Barry S. Norris, Senior Resident Inspector

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